

FUNCTIONAL DEFECTS OF THE THYROID IN RELATION TO NEUROTIC CONDITIONS.*

By H. W. WRIGHT, M. D., San Francisco. (Report of Case.)

As time goes on the literature of the ductless glands increases to an astonishing degree. But exact and certain knowledge as to the functions of these glands and indications for treatment with extracts of them does not increase proportionately. With regard to the thyroid gland our knowledge has attained a more secure basis and when we have the totality of symptoms or even a few pronounced symptoms of Grave's disease, myxedema or cretinism to deal with we no longer need to feel in the dark either as to diagnosis or treatment. It is not with these clear cut entities that this article is concerned but rather with the more obscure symptom-complexes which appear to be the result of malfunction of the thyroid gland and especially with those symptoms referable to the effect of this malfunction upon the nervous system.

In any case of nervousness there is a multiplicity of causative factors and back of all a defective mental attitude toward life in general or toward the particular circumstances of life which happen to confront the individual patient. To say that the thyroid gland is responsible for such a host of symptoms as these neurotic patients suffer from would be absurd; to say that it is responsible for any of them would be hazardous if we did not have good reason to know that unhealthy emotions do surely affect the secretion of the gland, either causing excessive, diminished or perverted secretion. (Oppenheim.)

We also are justified from clinical experience as well as laboratory research in believing that the atrophy of the generative organs and the suprarenal glands incident to that period of life known as the presenile or involution period has an effect upon the secretion of the thyroid and that in some cases this effect is abnormal, i. e., that the thyroid either fails to atrophy synchronously and to a parallel degree with the gradual atrophy of the generative and suprarenal glands or that it hypo-secretes to an undue degree because of the changes in these structures, and thus there is a disturbance in the balance of secretion of all the ductless glands.

The influence of the female generative organs upon the thyroid is seen in pregnancy and the menstrual period at which times there is swelling and perverted secretion of the thyroid. Thyroid extract is now used in eclampsia with benefit; puerperal mania often resembles the delirium of Grave's disease. Atrophy of the ovary resulting from disease or from the menopause or removal of the ovaries results in neurotic symptoms which are characterized by instability of the vaso-motor system, local edema, headaches, lassitude, or unrest, vague neuritis pains, tachycardia and tremor, dry skin, pruritus, cold extremities, sudden giving way of muscular power when walking, etc., some of

which symptoms we know are significant of excessive thyroid secretion and some of an abnormally diminished thyroid secretion. In pure "neurasthenia," especially that which has begun late in life after the period of greatest activity and following emotional disturbances incident to the vagaries of fortune in captains of industry, or in those who have otherwise lived strenuously in professional or artistic fields of labor, we find frequently the following complex: a low blood pressure, an excitable pulse, periods of profuse perspiration at night, cold, clammy skin during the day, urticarial eruptions, neurotic edema of transient nature, alternate flushing and pallor of the facial blood vessels, hypo-tonicity of the intestinal muscles resulting in intestinal stasis, a great susceptibility to fatigue of all muscle function and of cerebral activity. Such symptoms have not been present during youth or early manhood in the majority of these patients; in some, however, we do get a history of previous attacks of "nervous breakdown" accompanied by some of the symptoms above mentioned, occurring at puberty and afterward, with an antecedent history of delicate health during infancy and childhood. These conditions may possibly be due to imperfect development of the thyroid.

The vaso-motor symptoms of neurasthenia just mentioned could not occur if the adrenal secretion were abundant nor could they occur if the thyroid secretion were not present in greater proportion in relation to the adrenal secretion and in greater proportion in relation to the testicular or ovarian secretion than occurs in normal health. There are also certain mental states, some of whose symptoms I feel can be explained upon the basis of defective function of the ductless glands and consequently upon hyper—hypo—or perverted secretion of the adrenal and hence of the thyroid; or to use a more comprehensive term, upon dysthyroidism (e. g., mania and melancholia and the mild dementia which accompanies arteriosclerosis, also dementia praecox). Sajous ascribes to the adrenal gland the function of a regulator of the secretion of all the other ductless glands by reason of the oxidizing and blood-pressure raising substance present in its secretion. Be that as it may the clinical pictures just described are consistent with a defect of the thyroid secretion.

The study of these conditions and the treatment of them is rendered especially difficult in most instances because of the fact that there are symptoms present in the same patient, relative to both hypo-secretion and hyper-secretion, and therefore to perverted secretion. Until further research has revealed to us just what chemical substances are lacking or too abundant in the secretion of the thyroid in these obscure forms of thyroid disease, we can only treat them experimentally and palliatively. But this lack of exact knowledge relative to therapeutic indications makes the problem still more interesting and it is incumbent upon us to examine every medical case with the idea of ascertaining the presence of symptoms referable to the malfunction of the glands of internal secretion, to

* Read before the Santa Barbara County Medical Society, June 8, 1914.

compare notes and to standardize the results of our observations so as to have a working basis for further research.

The following patient illustrates some of the obscure and puzzling manifestations of partial myxedema and partial Grave's disease, cases of which have been reported by Elliott of Chicago (*Journal of A. M. A.*, May 30, 1908), Nichols of Washington (*Journal of A. M. A.*, April 10, 1909), Osborne of New Haven, and many writers in the German and French literature. The patient came under the writer's care on May 18th of this year with the following history, which is considerably condensed from that originally obtained:

The patient is a lady of 58 years, who has lived in Detroit most of her life. She was widowed and left with two sons when a young woman and had until a few years ago been obliged to work very hard as a teacher of music in order to give her boys an education as well as to maintain her living on the level to which she had been accustomed. She can be described as to mental make-up by saying that she is of a very sensitive, alert, ambitious and proud nature with "the artistic temperament," which has not suffered with patience many adversities affecting her emotions and many physical disorders affecting her health. About 11 years ago had acute appendicitis with abscess and prolonged convalescence during most of which she worked hard at her profession, keeping house at the same time, conducting a large musical conservatory and writing musical reviews. This resulted in a breakdown which was called acute nervous prostration and which was accompanied by pronounced cardiac weakness and rapidity of the heart's action. While taking a rest cure she developed acute gall-stone colic and was not operated on. In a few months went to work again very strenuously, but developed a disturbance of vision which was competently diagnosed as "acute glaucoma," and double iridectomy was performed. This operation and the fear of blindness was a great nervous shock to her, she says, and while recovering from it in a sanitarium she again had gall-stone colic, was put on the operating-table, but collapsed before operation could be performed and had to be resuscitated by artificial respiration. In three months was hard at work again and doing well, when she began to be depressed and easily fatigued, also restless and uneasy in mind, unable to concentrate and suffered from palpitation of the heart. She consulted a specialist on the thyroid. He pronounced her condition due to excessive thyroid secretion, and under family physician's observation she took a course of treatment with thyrodoctin. She improved, but was unable to take up work again and came to the Pacific Coast two years ago to recuperate. She went home after a year much improved, but in a few weeks began to complain of undue fatigue upon walking, especially that her knees would suddenly give way. She again became depressed and restless and very discouraged, once attempting suicide by taking 30 grains of veronal. She has been out on this coast again since the latter part of April, and for three weeks before I saw her had been suffering from intermittent pain and redness of the left foot, especially when out of bed, which kept her awake at night. Together with this she had complained and still does of sudden giving out of muscular strength at the knees after a short walk, also of fleeting pains in the lower limbs of a neuritic type, insomnia and occasional cardiac palpitation after exertion, also she suffers a great deal from coldness of the hands and feet which is present even on warm dry days to some extent, but which is readily relieved by getting into bed with a hot

water bag. She is depressed to the verge of melancholia and has thoughts of suicide.

Examination shows a poorly nourished woman with pigmented skin under the lower eyelids and elsewhere, no visible thyroid, no tremor, heart action rather feeble, but regular and no constant rapidity and no murmurs; blood pressure low (110), and pulse about 80, blood pressure is readily raised by strong emotion; no apparent sclerosis of the artery. The skin and hair are very dry. The extremities are generally cold; the left foot at times presents the typical picture of erythro-melalgia with purpuric spots along the course of the plantar nerves and marked pain on pressure here. The urine is normal. Enlargement of the veins of the neck and dull reddish patches on the face are occasional symptoms. Sudden asthenia frequent. Under administration of calcium lactate on the supposition of the thyroid's secretion being in excess, the parathyroid secretion being proportionately diminished and also because of its benefit in urticaria and angio-neurotic edema there was considerable improvement in the erythromelalgia and under aspirin treatment it was more promptly relieved. The patient is at present resting in hospital and undergoing treatment for insomnia and loss of appetite and for experimental therapy. To sum up we have a history of symptoms of excessive thyroid secretion, viz.: tachycardia, restlessness, and emotionalism, depression of spirits with anxiety and vasomotor instability combined with symptoms now present of diminished secretion such as muscular asthenia, dry skin and cold extremities and neuritic pains, which are not constant symptoms, however. Cardiac palpitation recurs frequently. Whether the erythromelalgia is a manifestation of thyroid excess or of diminished secretions cannot yet be determined. However, the thyroid may be said in this case to be working excessively at times and at times not secreting sufficiently but that the predominant condition is an excessive secretion. Or shall we say that other ductless glands, especially the ovarian and adrenal, are atrophied to such an extent that this has caused a modification in the thyroid secretion? The prognosis in this case should not be necessarily bad for as time goes on the excessive activity of the thyroid may be expected to subside and the patient's whole organism to become gradually adapted to the changes in the ductless glands incident to advancing age. Much, of course, will depend upon regulation of the patient's life, both physically and mentally; her emotional life especially will need proper safeguarding and satisfying channels for expression.

SUCCESSFUL METHODS OF ATTACK ON MALARIA IN CALIFORNIA.

By PROFESSOR WILLIAM B. HERMS (University of California).

In spite of the fact that about thirty-five years have elapsed since Laveran discovered the causative organism of malaria in the red blood-cell of man, and about twenty-seven years since Ronald Ross and co-workers revealed the rôle that the Anopheles mosquito plays in its transmission, and notwithstanding the fact that malaria is now perhaps one of the best known diseases, there is still much left to be accomplished in its control. Furthermore, the ignorance and false notions of otherwise intelligent persons with regard to malaria is astonishing.

The average man adheres tenaciously to the long disproven notions that malaria is contracted by drinking "bad water," or by eating over-ripe fruit, or by breathing the air from swamps or newly turned soil, by over-exertion, etc.,—all of which